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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/634,750	08/09/2000	Miguel Philipe Paul Peeters	1073/0H510	5583

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STERNE, KESSLER, GOLDSTEIN & FOX PLLC
1100 NEW YORK AVENUE, N.W.
WASHINGTON, DC 20005

EXAMINER

AHN, SAM K

ART UNIT	PAPER NUMBER
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2634

DATE MAILED: 03/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/634,750

Applicant(s)

PEETERS, MIGUEL PHILIP
PAUL

Examiner

Sam K. Ahn

Art Unit

2634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 August 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 August 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☒ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 1.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Great Britain on June 21, 2000. It is noted, however, that applicant has not filed a certified copy of the 0015236.3 application as required by 35 U.S.C. 119(b).

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the circuitry for controlling, as recited in claim 12 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered. It appears that the filter, 6 in Fig.1 has the function of reducing and the function of controlling or circuitry for reducing and circuitry for controlling the frequency position, however, the claimed subject matter is not clearly illustrated in Fig.1.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

3. Claims 5 and 11-20 are objected to because of the following informalities:

In claim 5, line 1, the Office suggests the claim to depend on a single claim.

In claim 11, line 6, delete "filtered signal" and insert "filtered clipped signal".

In claims 11 and 20, lines 8 and 11, respectively, delete "the threshold" and insert "the given threshold".

In claim 11, line 2, delete "the signal" and insert "the band-limited, over-sampled signal".

In claim 11, line 6, delete "filtered signal from the delayed signal" and insert "filtered clipped signal from the delayed band-limited, over-sampled signal".

In claims 11, 12, 13 and 20, line 7, 3, 2, 2 and 11, respectively, delete "the signal" and insert "the band-limited, over-sampled signal".

In claim 11, line 8, delete "the threshold" and insert "the given threshold".

Claims 14-19 directly or indirectly depend on claim 12.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 9-11, 15 and 18-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 9, 10, 18 and 19 recite the limitation "the opposite direction" in lines 4 and 2, respectively. There is insufficient antecedent basis for this limitation in the claim.

Claim 11 recites the limitation "the clipping noise" in line 5. There is insufficient antecedent basis for this limitation in the claim.

Claim 15 recites the limitation "the arithmetic unit" in lines 2-3. There is insufficient antecedent basis for this limitation in the claim.

Claim 20 recites the limitation "the multi-carrier signal" in line 4. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 2, 4-10 and 12-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Amrany et al. (Amrany) in view of Mestdagh (cited in IDS, paper no.1).

Regarding claims 1 and 12, Amrany teaches a method and a circuit for processing a band-limited, over-sampled signal, multi-carrier DSL signal, comprising circuitry for reducing the amplitude of those portions of the signal having peaks above a threshold value (see 254, 204 in Fig.5 and note abstract, col.2, lines 37-43, col.4, lines 24-30, col.7, line 59 – col.8, line 11). Amrany although teaches the filter, however, does not teach wherein the filter further

functions of controlling the frequency position of the noise associated with the reduction of such peaks.

Mestdagh teaches, in the same field of endeavor, of clipping signals that are above a threshold further comprising a filter (see 19 in Fig.4, and Fig.8B) for controlling the frequency position of the noise associated with the reduction of such peaks. (note col.2, lines 10-25, col.5, lines 35-58, col.6, lines 32-34)

Therefore, it would have been obvious to one skilled in the art at the time of the invention to modify Amrany's filter with Mestdagh's and improve by further eliminating noise that may have resulted from clipping. As system designers constantly pursue to further eliminate any unwanted noise, one skilled in the art would be motivated to combine further methods and apparatus to be incorporated into the system, such as the filter taught by Mestdagh, and therefore reduce noise, in this case noise from the clipping, and as a result design a robust transmitter sending only signals with minimal level of noise.

Regarding claims 2 and 13, Amrany in view of Mestdagh teach all subject matter claimed, as applied to claim 1 or 12. Amrany further teaches the circuitry for reducing comprises a limiter for clipping the signal relative to the threshold (see 254, 204 in Fig.5 and note abstract, col.2, lines 37-43, col.4, lines 24-30, col.7, line 59 – col.8, line 11), a filter for filtering the clipped signal (204) and an arithmetic unit for combining the filtered clipped signal with the signal (256).

Regarding claim 4, Amrany in view of Mestdagh teach all subject matter claimed, as applied to claim 2. Mestdagh further teaches wherein the step of filtering the clipped signal comprises creating a pulse having a predetermined shape dependent upon the clipped samples. (see Fig.7A, 7B and note col.6, lines 23-29)

Regarding claim 5, Amrany in view of Mestdagh teach all subject matter claimed, as applied to claim 2. Amrany further teaches wherein the step of combining comprises subtracting (256) the filtered signal (output of 204) from the band-limited, over-sampled signal (output of 202).

Regarding claim 6, Amrany in view of Mestdagh teach all subject matter claimed, as applied to claim 2. Amrany further teaches wherein the step of combining comprises delaying (by 278) the band-limited, over-sampled signal wherein it would have been obvious to one skilled in the art at the time of the invention to delay by an amount corresponding to the time taken to implement the clipping and filtering steps in order to properly subtract at the subtractor, 256, otherwise, the subtractor would not be subtracting the corresponding values.

Regarding claim 14, Amrany in view of Mestdagh teach all subject matter claimed, as applied to claim 13. Amrany further teaches wherein the arithmetic unit is a subtractor (256).

Regarding claim 15, Amrany in view of Mestdagh teach all subject matter claimed, as applied to claim 12. Amrany further teaches a delay circuit (278) for providing a delayed version of the signal to the arithmetic unit (256).

Regarding claims 7 and 16, Amrany in view of Mestdagh teach all subject matter claimed, as applied to claim 1 or 12. Mestdagh further teaches wherein the circuitry for controlling the frequency position of the noise comprises a filter (19 in Fig.4).

Regarding claims 8-10, 17 and 18, Amrany in view of Mestdagh teach all subject matter claimed, as applied to claim 1 or 12. Mestdagh further teaches wherein the circuitry for controlling the frequency position of the noise controls the noise to be positioned outside the frequency band used by the signal. (see Fig.8B) And further, it would have been obvious to one skilled in the art at the time of the invention to control the noise to be placed above the frequency range where the received signals are located, since the system would be receiving signals in a certain frequency range (for example between f_2 and f_3 in Fig.8B), one skilled in the art would be motivated to locate the f_3 to be much higher for the purpose of avoiding the system from mixing the noise with the signal received.

Regarding claims 19, Amrany in view of Mestdagh teach all subject matter claimed, as applied to claim 18. Amrany further teaches an echo canceller (222)

where the system is designed to cancel echo, which is a well-known phenomenon in the field such as a DSL transmitter taught by Amrany and Mestdagh. Therefore, it is inherent that Amrany may have been fully aware that the signal contributes and echo to the signal transmitted in the opposite direction.

Allowable Subject Matter

6. Claims 11 and 20 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, and claim objections, set forth in this Office action.
7. Claim 3 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.
8. The following is a statement of reasons for the indication of allowable subject matter:
Present application discloses noise reduction in a DSL transmitter wherein during a clipping step of input signal, the noise created during the clipping step is eliminated by filtering and moving the noise portion to a frequency outside the range of usage. Prior arts, Amrany in combination with Mestdagh teach all subject matter claimed, however, viewed solely or in combination do not teach or suggest wherein the clipped signal is subtracted by the input signal wherein the subtracted signal is inputted to the filter.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Chow et al. teach clipping of input signal in the same environment further having a limiter coupled to a filter.

Polley et al. teach clipping in a discrete multi-tone system.

Hanson teaches limiter coupled to a filter.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Sam Ahn** whose telephone number is **(703) 305-0754**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Stephen Chin**, can be reached at **(703) 305-4714**.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

P.O. Box 1450

Alexandria, VA 22313-1450

or faxed to:

(703) 872-9306

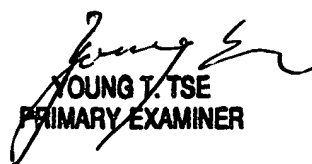
Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Sam K. Ahn
3/19/04


YOUNG T. TSE
PRIMARY EXAMINER